
Chapter 2A-The Chemical Basis of Life

Atomic Structure

Directions: Write your answer in the spaces provided using complete sentences.

1. What atomic particles occupy the nucleus of an atom?

2. What is the charge on the nucleus?

3. Describe the location and movement of electrons.

4. Explain the difference among energy levels as it applies to the number of electrons.

5. If you knew the number of protons in a given atom, how would that enable you to figure out the number of electrons in the atom.

6. How are the electrons arranged in an oxygen atom?

7. Why is hydrogen considered to have the simplest atomic structure?

Directions: Write the term that is being described in each space provided.

8. This is the smallest particle of an element that can retain its chemical properties.

9. Composed of only one type of atom, over 100 types of these have been discovered.

10. An atom consists of a nucleus surrounded by these tiny particles.

11. The nucleus of an atom contains these two types of particles: _____,

which has a positive charge, and _____.

12. These are regions of space outside the nucleus where electrons travel.

13. A substance that is composed of 2 or more elements.

Directions: Mark each statement below with *T* if it is true and *F* if it is false.

_____ 14. An atom containing fewer electrons than protons has a negative ionic charge.

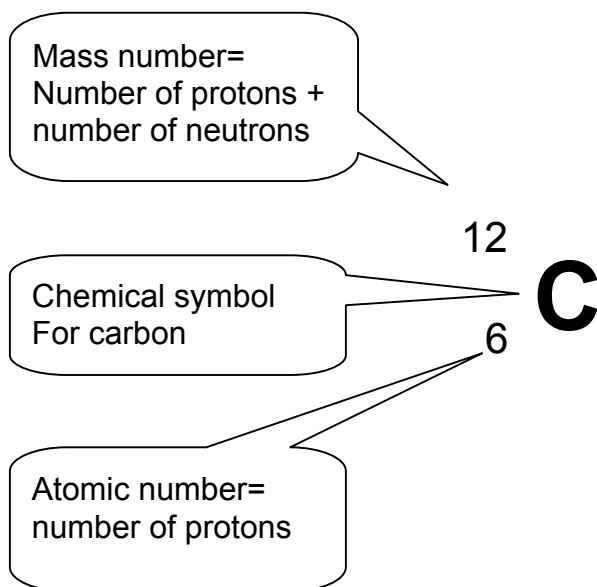
_____ 15. A partially filled outer energy level makes an atom stable.

_____ 16. Atoms gain or lose electrons to fill their outer energy levels and form ions.

Directions: Explain the difference between each of the following sets of terms in the space provided.

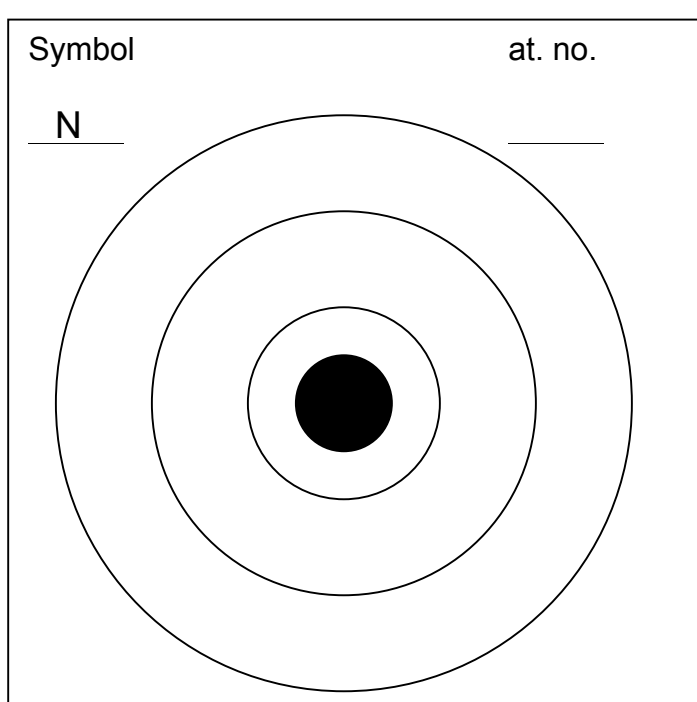
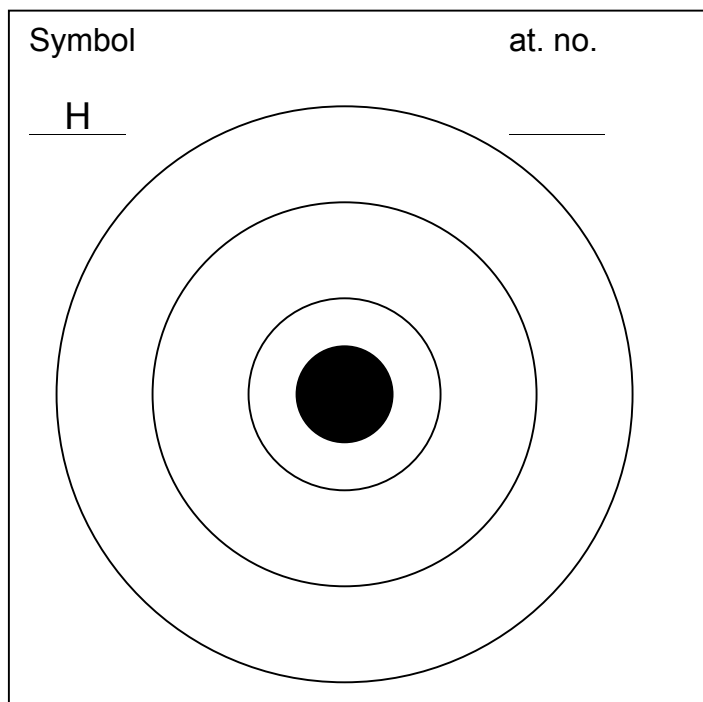
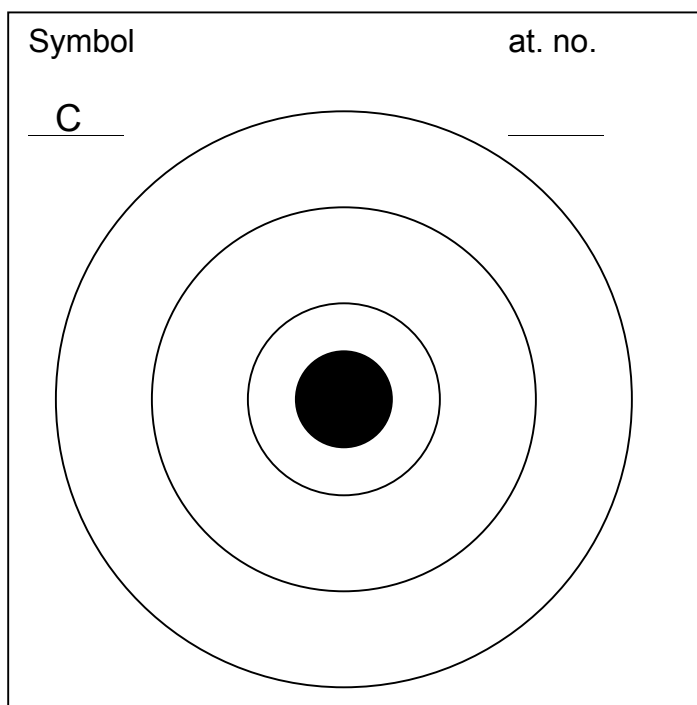
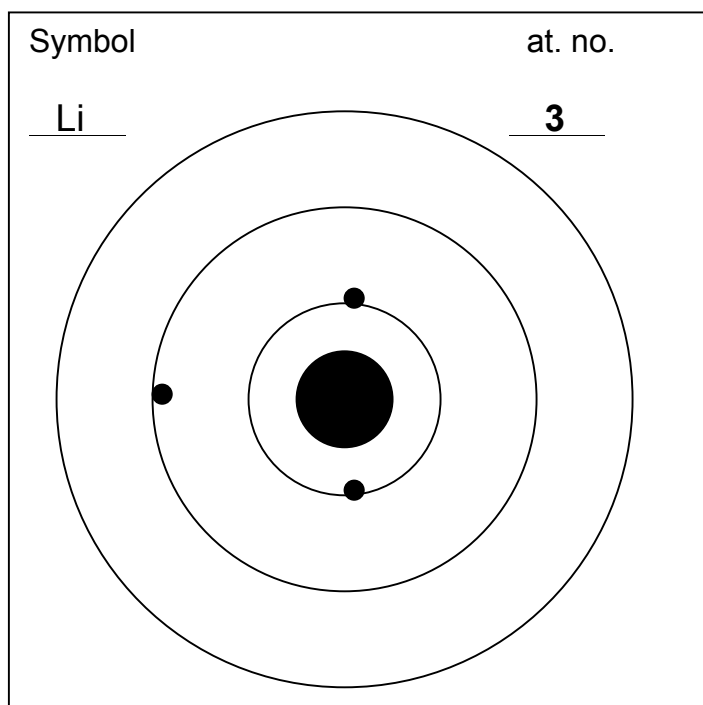
17. Molecule, element _____

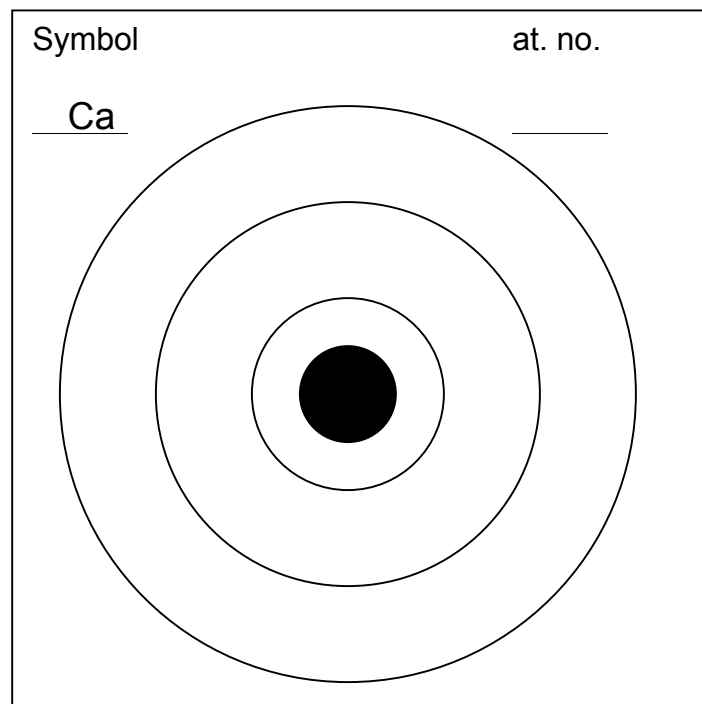
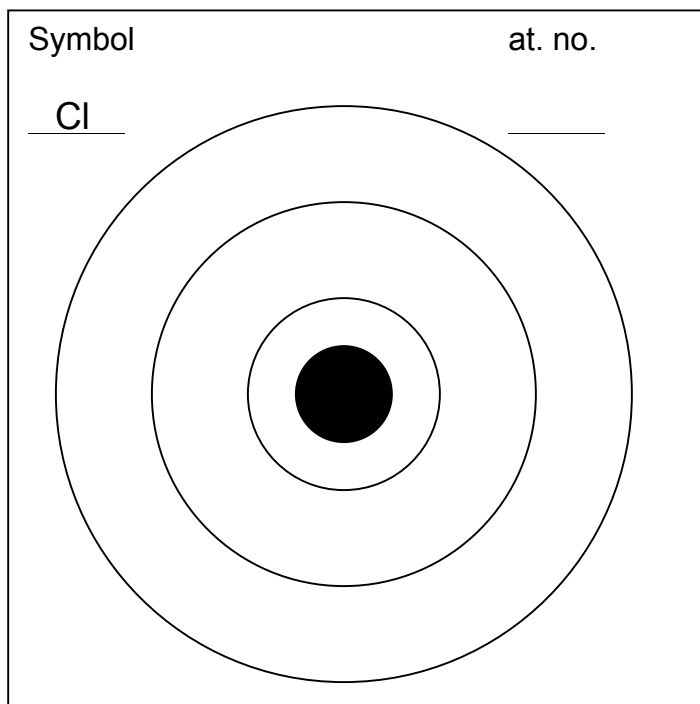
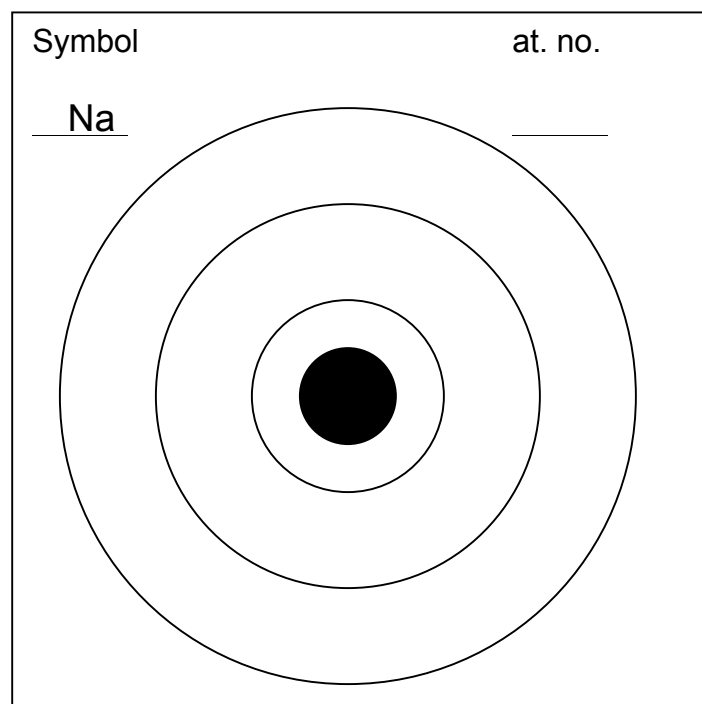
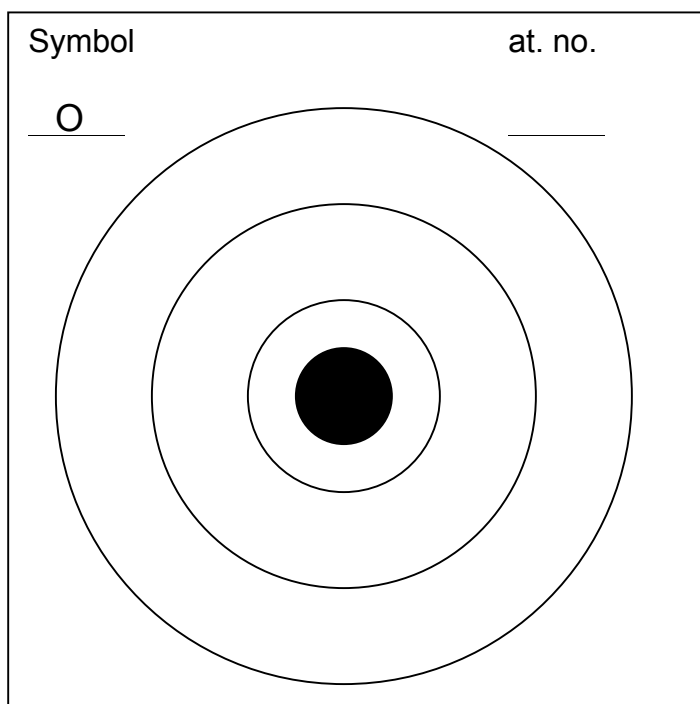
Directions: Fill in the table below.

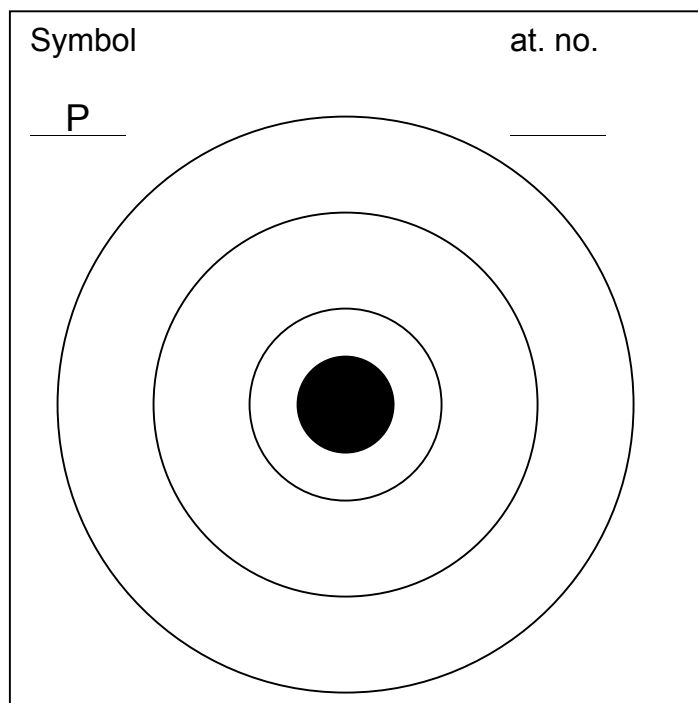
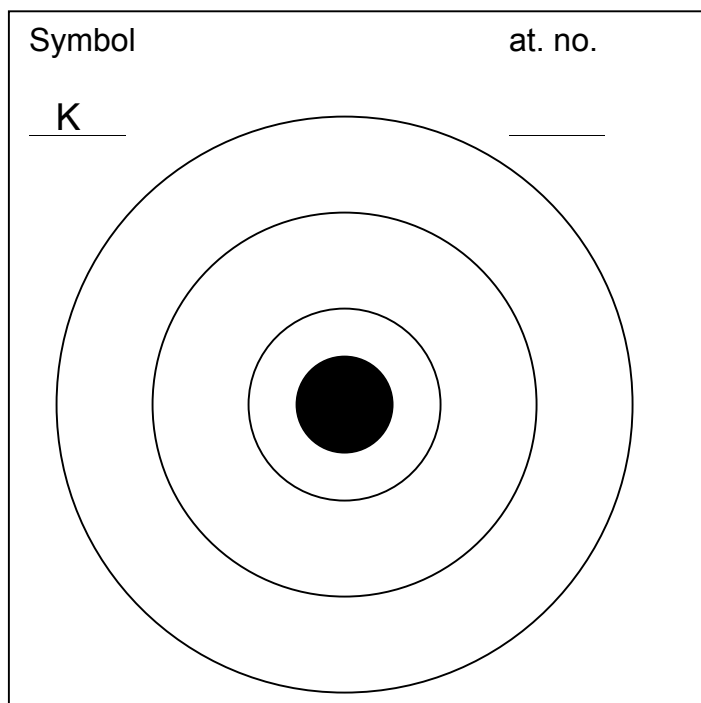


ATOMIC NUMBER AND ATOMIC MASS FOR SOME ELEMENTS AND NUMBER OF ATOMIC PARTICLES					
Element	Symbol	Atomic Number	Atomic Mass	Number of Protons	Number of Electrons
Hydrogen	H	1	1.0		
Beryllium	Be	4	9.0		
Carbon		6	12.0		
Flourine	F	9	19.0		
Lead		82	207.2		
Uranium	U	92	238.0		
Nitrogen	N	7	14.0		

Directions: Complete each atomic diagram below by drawing the planetary electrons and write the atomic number. The diagram for lithium has been done for you.







Directions: Select the answer that best completes the question or statement below. Place your answer in the blank space.

- _____ 18. How an atom behaves when it comes into contact with other atoms is determined by its
- nucleus.
 - size.
 - protons.
 - neutrons.
 - electrons.
- _____ 19. Atoms of different phosphorus isotopes
- have different atomic numbers.
 - have different number of neutrons.
 - react differently with other atoms.
 - have different number of electrons.
 - have different number of protons.
- _____ 20. An ion is formed when an atom
- forms a covalent bond with another atom.
 - gains or loses an electron.
 - becomes part of a molecule.
 - gains or loses a proton.
 - gains or loses a neutron.

- _____ 21. An atom that normally has _____ in its outer shell would tend *not* to form chemical bonds with other atoms.
- a. 1 electron
 - b. 3 electrons
 - c. 4 electrons
 - d. 6 electrons
 - e. 8 electrons
- _____ 22. A sodium atom has a mass number of 23. Its atomic number is 11. How many electrons does it have (if it is not an ion)?
- a. 11
 - b. 12
 - c. 22
 - d. 23
 - e. 34